Customer No. 24498
Serial No. 10/541,577
Response to OA dated December 24, 2008

Docket No. PF030001

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1.   (Currently amended) A method for creating or accessing a menu for audio content stored in a storage means, the content consisting of audio tracks, and the menu containing representations of said audio tracks, the method comprising

-    classifying the audio tracks into groups or clusters, wherein said classification is performed according to characteristic parameters of said audio tracks, wherein said characteristic parameters comprise physical features, perceptual features, and psychological features, wherein physical features comprise one or more of spectral centroid, short-time energy, or short-time average zero-crossing, and wherein perceptual features comprise one or more of rhythm and tonality;

-    detecting addition of a new audio track;

-    determining characteristic parameters of the new audio track;

-    ~~based on the determined characteristic parameters of the new audio track, classifying the new audio track into an existing group or cluster;~~

-    determining that dissimilarity between the newly added track and existing clusters, according to said characteristic parameters used for classification, reaches at least a defined minimum level;

-    upon said determining, automatically creating a new, second cluster;

-    assigning the new audio track to said new, second cluster;

-    classifying the audio tracks into the groups or clusters, including the second cluster;

-    selecting automatically ~~an~~ a first audio track ~~as~~ being a representative for the second cluster ~~into which the new audio track was classified~~, wherein the medoid of the cluster is selected;

-    automatically generating a reproducible audio extract from said first representative audio track; and

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- associating said audio extract as representative of ~~said~~ <u>the second</u> cluster to a menu list.

2. (Previously Presented) Method according to claim 1, wherein said characteristic parameters used for classification of audio content comprise one or more audio descriptors, the audio descriptors being either physical features, or perceptual features, or psychological or social features of the audio content.

3. (Previously Presented) Method according to claim 1, wherein an audio track can be classified into more than one cluster.

4. (Previously Presented) Method according to claim 1, wherein the audio tracks within a cluster have variable order, so that the user listens to a randomly selected track when having selected a cluster, with said track belonging to said cluster.

5. (Previously Presented) Method according to claim 1, wherein a user can modify the result of automatic classification of audio tracks.

6. (Previously Presented) Method according to claim 1, wherein a user can modify the classification rules for automatic classification of audio tracks.

7. (Previously Presented) Method according to claim 1, wherein the actual audio data are clustered within said storage means according to said menu.

8. (Previously Presented) Method according to claim 1, wherein the audio extract is a sample from the audio track.

9. (Previously Presented) Method according to claim 1, wherein audio extracts are created additionally for audio tracks not being representatives of clusters.

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10.   (Previously Presented) Method according to claim 1, wherein the length of audio extracts is not predetermined.

11.   (Previously Presented) Method according to claim 1, wherein one of said clusters has no representative track.

12.   (Previously Presented) Method according to claim 1, wherein said menu is hierarchical, such that a cluster may contain one or more subclusters.

13.   (Previously Presented) Method according to claim 1, wherein the classification rules are modified automatically if a defined precondition is detected, and a reclassification may be performed.

14.   (Previously Presented) Method according to claim 13, wherein said precondition comprises that the difference between the number of tracks in a cluster and the number of tracks in another cluster reaches a maximum limit value.

15.   (Previously Presented) Method according to claim 13, wherein said precondition comprises that all stored tracks were classified into one cluster, and the total number of tracks reaches a maximum limit value.

16.   (Currently amended) An apparatus for creating or accessing a menu for audio content stored on a storage means, the content consisting of audio tracks, and the menu containing representations of audio tracks, the apparatus comprising

- means for ~~automatically~~ classifying the audio tracks into groups or clusters, wherein said classification is performed according to characteristic parameters of said audio tracks;

- means for detecting addition of a new audio track;

- means for determining characteristic parameters of the new audio track, wherein said characteristic parameters comprise physical features, perceptual features, and

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psychological features, wherein physical features comprise one or more of spectral centroid, short-time energy, or short-time average zero-crossing, and wherein perceptual features comprise one or more of rhythm and tonality;

- ~~means for classifying, may based on the determined characteristic parameters, the new audio track into an existing group or cluster~~; means for determining that, according to said determined characteristic parameters, dissimilarity between the newly added track and existing clusters reaches at least a defined minimum level;

- ~~after said new audio track was classified into said cluster and before an audio track was selected as representative for said cluster~~; means for automatically creating a new, second cluster upon said determining;

- means for assigning ~~some of~~ the new audio ~~tracks of~~ track to said new, second cluster; ~~including the newly added track, based on the respective characteristic parameters, to the new cluster while some audio tracks remain in said first cluster~~;

- means for classifying the audio tracks into the groups or clusters, including the second cluster;

- means for ~~automatically selecting~~ selecting automatically ~~an~~ a first audio track as being a representative for the second cluster, ~~into which the new audio track was classified~~, wherein the medoid of the second cluster is selected;

- means for automatically generating a reproducible audio extract from said first representative audio track; and

- means for associating said audio extract as representative of the second ~~said~~ cluster to a menu list.

17.   (Currently Amended) Apparatus according to claim 16, further comprising

- means for selecting and reproducing a first audio extract from ~~a~~ the first cluster;

- means for a first user input, the input controlling whether the cluster associated with the ~~first~~ currently selected audio ~~extract~~ thumbnail is selected or not; and

- means for a second user input, the input controlling whether another cluster is selected or not.

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18.   (Currently amended) Apparatus according to claim 16, further comprising means for reading an audio track of ~~the~~ a selected cluster from said storage means for playback.

19.   (Currently amended) Method according to claim 1, wherein the audio extract is an audio sequence being synthesized from the actual audio track <u>rather than being an original sample.</u>

20.   (Currently amended) Method according to claim 1, further comprising ~~after~~ the step<u>s</u> of ~~classifying the new audio track into an existing group or cluster and before the step of~~

   - selecting automatically ~~an~~ <u>a second</u> audio track <u>being</u> ~~as~~ <u>a</u> representative for the ~~into which the new audio track was classified, the steps of:~~ <u>first</u> cluster, <u>wherein the</u> <u>medoid of the first cluster is selected;</u>

   ~~- detecting the number or a dissimilarity range of the tracks within said cluster;~~

   ~~- if the detected number or dissimilarity range is above a minimum level, automatically creating a new cluster;~~

   ~~- assigning some of the audio tracks of said cluster, including the newly-added track, based on the respective characteristic parameters, to the new cluster while some audio tracks remain in said cluster;~~

   ~~- and the method further comprising the steps of:~~

   ~~- selecting automatically an audio track being a representative for the new cluster, wherein the medoid of the new cluster is selected;~~

   - automatically generating a reproducible new audio extract from ~~said~~ <u>the second</u> audio track; ~~representative for the new cluster;~~ and

   - associating said new audio extract <u>of the second audio track</u> as representative of ~~said~~ ~~new~~ <u>the first</u> cluster to the menu list.

21.   (Currently amended) Method according to claim ~~20~~ <u>1</u>, wherein the step of assigning ~~some~~ <u>one or more</u> of the audio tracks of said <u>first</u> cluster to the new <u>second</u> cluster uses the K-means algorithm to decide which audio tracks are assigned to the ~~new~~ <u>second</u> cluster.

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22.   (Currently amended) Method according to claim ~~20~~ 1, wherein the minimum level to which the detected number of tracks within said first cluster is compared depends on the number of tracks in other existing clusters.

23.   (Currently amended) Apparatus according to claim 16, further comprising:
- means ~~for detecting the number or a dissimilarity range of the tracks within said cluster, after said new audio track was classified into said cluster and before an audio track was selected as representative for said cluster;~~ for automatically selecting a second audio track being the medoid audio track of the first cluster;
- ~~means for automatically creating a new cluster if the detected number or dissimilarity range is above a minimum level;~~
- ~~means for assigning some of the audio tracks of said cluster, including the newly added track, based on the respective characteristic parameters, to the new cluster while some audio tracks remain in said cluster;~~
- ~~and further comprising:~~
- ~~means for automatically selecting the medoid audio track of the new cluster as representative for the new cluster;~~
- means for automatically generating a reproducible ~~new~~ audio extract from said second audio track ~~representative for~~ of ~~the new cluster~~; and
- means for associating said ~~new~~ audio extract generated from the second audio track as representative of ~~said new~~ the first cluster to the menu list.

24.   (Currently amended) Apparatus according to claim ~~23~~ 16, wherein the means for assigning ~~some~~ at least one of the audio tracks of said first cluster to the ~~new~~ second cluster uses the K-means algorithm to decide which audio tracks are assigned to the ~~new~~ second cluster.

25.   (Currently amended) Apparatus according to claim ~~24~~ 16, wherein the minimum level to which the detected number of tracks within said first cluster is compared depends on the number of tracks in other existing clusters.

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26.   (New) Method according to claim 20, wherein another audio track was a representative of the first cluster before the new audio track was added, and said first audio track being representative of the first cluster is different from the other audio track that was representative of the first cluster before the new audio track was added.

27.   (New) Method according to claim 3, wherein a track is classified into two clusters and both clusters contain a link to said track, and wherein the track is stored only once.

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